to nearly 1 inch over the East Fork, was released more slowly by melting during the following week, probably reducing somewhat the crests following, particularly in the East Fork and main White Valleys.

As was true through the entire State, there was a decided increase in the intensity of the rainfall in each of the four periods from north to south over the Wabash-White Basin. In the middle and upper Wabash Valley these amounts totalled well under previous January records at all stations; in the West Fork of White Valley the amounts were for the most part somewhat above previous January records; and over the East Fork of White Valley, the rainfall far exceeded that of any previous January at all stations.

The result of this distribution of rainfall was to produce a series of rises in the middle and upper channels of the Wabash and West Fork of White River, with the main crests occurring comparatively early, from the 16th at Bluffton, Ind., on the Wabash River, to the 19th at Edwardsport, Ind., on West Fork of White River; while the descending water from above and the heavier rainfall below caused a more continuous rise in the East Fork and main White, and the extreme lower Wabash River, to their crests later. At Williams and Shoals, Ind., on the East Eork, the crests occurred on January 25. Below, from Petersburg, Ind., on the White, to New Harmony, Ind., on the Wabash, crests were somewhat earlier—January 21 to January 24—most probably because of the serious breaking of levees in the Decker and Hazleton, Ind., sections. At New Harmony, Ind., on the Wabash River, about 50 miles above confluence with the Ohio, while the crest from upstream water was reached on January 24 and there was a slight fall on the following 2 days, a further rise occurred due to backing water from the Ohio River, the final crest being recorded on January 31.

Advices and warnings were issued frequently during the period to all river and distributing stations, and further distribution, was secured by the two Indianapolis radio stations WIRE and WKBF, and the radio station at Evansville, Ind., WGBF. The several State Police radio stations also assisted materially, not only in distributing the advices issued, but also in gathering data and reporting conditions from areas in which wire communication was interrupted. On numerous occasions the Indianapolis radio stations, particularly WIRE, interrupted their regular programs to send out information and warnings sent out by this office. It was necessary also in securing prompt distribution and in getting information for the Weather Bureau office at Indianapolis to call persons by long distance telephone; and calls by telephone from all parts of the river district were frequent throughout the flood period. * * *

At Decker, Ind., the old gage used by the Weather Bureau until the installation of the gages at Hazleton and Petersburg, Ind., showed the crest of the flood at that place to be 30 feet on January 21. It is 1 foot higher than any crest previously observed (29.0 feet in January 1930) and exceeded by 1.2 feet the crest of the flood of March 1913. There is no doubt, therefore, that the White River in this flood of January 1937 experienced the highest water of record along its whole course. This is further borne out by the excessive flooding in the Hazleton, Ind., area, which necessitated the evacuation of many families and damaged considerably the approaches to the highway bridge on Road No. 41, and did some damage to the bridge itself.

It will be noticed that, while the flood in the main White was without doubt higher than any previously known flood, the stages in the Wabash below at Mount Carmel, Ill., were 4 feet below the 31.0 crest of March 1913. This is due to the fact that there was not so much water upstream in the Wabash channel in this year's flood, as well as to the breaking of levees on the White, which slowed down the rush of water from that stream into the Wabash River.

Damage and loss were very severe in the White section below junction of the forks, and in the extreme lower Wabash stretches, but were only moderate to light in the middle and upper channels of the basin.

CUMBERLAND RIVER AND TRIBUTARIES

By R. M. WILLIAMSON

Heavy rainfall over the Cumberland River Basin during the night of January 1 averaged approximately 2.50 inches; several stations reported in excess of 4.00 inches. This occurred on a rising river bringing an immediate flood at Celina, Tenn., before 7 a. m. and flood warnings were issued at 8:30 a. m., January 2, for all points from Burnside, Ky., to Nashville, Tenn.

The damage from this flood was comparatively light. However, a second flood was in progress shortly after the middle of the month, much more serious than the first.

The actual crests reached in this second flood are given in the table below for a number of points, and comparison is made with the previous high records. The rank as to highest will drop to fourth place for Celina, Tenn., and third place for Carthage, Tenn., if the flood of January 1882 (which occurred before these stations were established) is considered.

Station	Length of record (years)	Crest January 1937	Rank as to highest on record	Previous record	Year
Burnside, Ky	53	54.3		69.4	1929
Celina, Tenn	34	53.6	Third	[1] 57.1	1926
Carthage, Tenn	52	54.6	Second	[2] 58.7	1926
Nashville, Tenn	63	53.8	Third	56.2	1927
Clarksville, Tenn	36	65.5	First	[3] 60.0	1927
Eddyville, Ky	20	76.9	do	68.5	1927

[1] 57.5, January 1882.
[2] 56.5, January 1882.
[3] 60.6, January 1882.

OHIO RIVER BELOW THE MOUTH OF THE WABASH; MISSISSIPPI RIVER FROM AND INCLUDING CAPE GIRARDEAU, MO., TO AND INCLUDING NEW MADRID, MO.; TENNESSEE RIVER AND TRIBUTARIES BELOW DECATUR, ALA.

By W. E. BARRON

After several months of comparatively low water, in which some unusually low stages were reached, a general rise began in the Ohio River during the last week of December 1936 and developed within 1 month's time into the greatest flood of record.

The flood was caused almost entirely by excessive rains over the drainage area of the Ohio River and its tributaries, including the three largest, the Wabash, the Cumberland, and the Tennessee Rivers. There was practically no snow on the ground at the beginning of the month and whatever amounts fell subsequently were absorbed in the general rains or floods, and had no particular influence on the stages of the river.

The table shows successively the amount of precipitation at various reporting stations for the periods January 1–10, 11–18, 19–25, together with the totals for the 25 days.

Table showing precipitation in inches by periods: January 1–25, 1937, for selected stations, Cincinnati, Ohio, to New Madrid, Mo. (Daily measurements, 7 a. m. or 8 a. m., seventy-fifth meridian time.)

Station	Jan. 1–10	Jan. 11–18	Jan. 19–25	Total, 25 days
Cincinnati, Ohio	1.70	4.56	7.25	13.51
Louisville, Ky	3.35	4.94	10.30	18.62
Evansville, Ind	1.90	5.07	7.34	14.31
Dam No. 48	1.81	5.70	7.81	15.32
Dam No. 49	2.89	5.96	8.43	17.28
Shawneetown, Ill	3.38	6.36	9.20	18.94
Dam No. 50	3.53	4.00	9.71	17.24
Dam No. 51	3.88	4.53	9.99	18.40
Paducah, Ky	3.76	2.75	10.64	17.15
Dam No. 52	4.48	3.68	10.87	19.03
Dam No. 53	3.66	5.38	8.55	17.59
Cairo, Ill	3.33	3.87	7.91	15.11
New Madrid, Mo	2.82	2.30	8.34	13.46

Rain periods along the Cumberland and Tennessee Rivers coincided roughly with those along the Ohio River. The Cumberland River reached 45.3 feet at Nashville, Tenn., on January 8, then receded to 24.0 feet on January 13, after which the almost daily rains brought the stage to 53.8 feet on January 26. This was an important contributing factor to the flood of the lower Ohio.

Along the Tennessee River the rainfall from December 30, 1936, to January 3, 1937, was 5.60 inches at Chattanooga, Tenn.; 5.73 inches at Guntersville, Ala.; 3.92 inches at Decatur, Ala.; 3.64 inches at Florence, Ala.; 3.07 inches at Riverton, Ala.; 5.44 inches at Savannah, Tenn.; and 1.70 inches at Johnsonville, Tenn. At the same time there were equally as heavy rains on the Elk River, which flows into the Tennessee a few miles above Wheeler Dam, and on the Duck River, which joins the Tennessee 14 miles above Johnsonville, Tenn. The rains and upriver discharges produced 33.0 feet at Chattanooga, Tenn., on January 4; 32 feet at Guntersville, Ala., and 23.2 feet at Decatur, Ala., on January 7; 19.6 feet at Florence, Ala., on January 6; 40.3 feet at Riverton, Ala., on January 7; 40.1 feet at Savannah, Tenn., and 32.0 feet at Johnsonville, Tenn., on January 8. Subsequent rains from January 9 to 25, inclusive, were as follows: Chattanooga, 5.76 inches; Guntersville, 7.50 inches; Decatur, 7.76 inches; Florence, 7.32 inches; Riverton, 5.60 inches; Savannah, 8.55 inches; Johnsonville, 21.97 inches, These rains were so distributed in point of time as to produce two